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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,282	06/30/2004	Isaac Zolotarev	81101089 / FMC 1761 PUSP	4281

28395 7590 01/05/2007

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EXAMINER	
HONG, JOHN C	
ART UNIT	**PAPER NUMBER**
3726	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/710,282	ZOLOTAREV ET AL.	
	Examiner	Art Unit	
	JOHN C. HONG	3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *15-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6//30/04;7/8/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election without traverse of claims 1-14 in the reply filed on 10/3/06 is acknowledged.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4,7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura (U.S. Patent 4741078) in view of Highburg et al. (U.S. Patent 3828479).

Regarding Claim(s) 1 and 2, Kimura teaches a multi-function industrial robot manipulator (Fig. 1).

Kimura fails to teach : a spindle positioning apparatus for a robotic manipulator comprising: a mounting plate assembly; a first spindle disposed on the mounting plate assembly in a fixed position ; a second spindle disposed on the mounting plate assembly and movable with respect to the first spindle; and an actuator mechanism adapted to position the second spindle with respect to the first spindle.

Highburg et al. teach : A spindle positioning apparatus (Figs. 7 and 8) comprising: a mounting plate assembly (68,69); a first spindle (63) disposed on the mounting plate assembly in a fixed position (col. 5, lines 52-55); a second spindle (61) disposed on the mounting plate assembly and movable with respect to the first spindle (col. 4, lines 58-66); and an actuator

mechanism (col.5, lines 19-26) adapted to position the second spindle with respect to the first spindle.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the spindle positioning apparatus, as taught by Highberg et al. on the apparatus of Kimura so as to drill a plurality of holes in a glass sheet simultaneously in a predetermined pattern and spacing (col. 1, lines 16-18).

Regarding Claim(s) 3, Highberg et al. teach the first spindle (63) extends through the fixed plate (68,69) and the second spindle (61) extends through the movable plate (64,66).

Regarding Claim(s) 8, Highberg et al. teach the first spindle is adapted to rotate about a first axis of rotation, the second spindle is adapted to rotate about a second axis of rotation, and the first and second axes of rotation are disposed parallel each other (Fig. 7).

Regarding Claim(s) 4, Highberg et al. teach the actuator mechanism(col. 5, lines 19-16) is disposed proximate the mounting plate assembly.

Regarding Claim(s) 7, regarding the limitation of distance between the 1st and 2nd axes of rotation is in the range of 75 mm to 1400 mm, It would have been obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to construct the apparatus of Highberg et al. with the distance between the 1st and 2nd axes of rotation is in the range of 75 mm to 1400 mm, because Applicant has not disclosed that the distance of 75 mm to 1400 mm provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the structure of the Highberg's apparatus because it would perform the drilling.

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura/Highberg et al. as applied to claim 1 above, and further in view of Lewis (U.S. Patent 3822958).

Kimura/Highberg et al. teach the limitation except the actuator mechanism further comprises a ball screw assembly having a ball nut and a ball screw, and a servo motor adapted to rotate the ball screw to actuate the ball nut.

Lewis teaches the actuator mechanism further comprises a ball screw assembly having a ball nut (63) and a ball screw(61), and a servo motor (70) adapted to rotate the ball screw to actuate the ball nut (Figs. 3 and 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Kimura/Highberg et al. by adding the a ball screw assembly having a ball nut and a ball screw, and a servo motor adapted to rotate the ball screw to actuate the ball nut, as taught by Lewis so as to move the carriage along the guide rod.

Regarding Claim(s) 6, Lewis teaches the ball nut (63) is attached to the movable plate (46) and the ball screw is attached to the fixed plate (20).

5. Claims 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura in view of Highberg et al. .

Regarding Claim(s) 9, Kimura teaches a multi-spindle positioning assembly comprising: a multi-axis robot having a manipulator arm (6) (Fig. 1).

Kimura fails to teach a spindle positioning apparatus including: a first mounting plate

having a first opening; a second mounting plate movably attached to the first mounting plate and having a second opening; a first spindle extending through the first opening and attached to the first mounting plate; a second spindle extending through the second opening and attached to the second mounting plate; and an actuator mechanism adapted to position the second spindle with respect to the first spindle.

Highberg et al. teach a spindle positioning apparatus including (Figs. 7 and 8): a first mounting plate (68.69) and having a first opening; a second mounting plate (68) movably attached to the first mounting plate and having a second opening; a first spindle (63) extending through the first opening and attached to the first mounting plate; a second spindle (61) extending through the second opening and attached to the second mounting plate; and an actuator mechanism (col.5, lines 19-26) adapted to position the second spindle with respect to the first spindle.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Kimura by adding a spindle positioning apparatus including: a first mounting plate having a first opening; a second mounting plate movably attached to the first mounting plate and having a second opening; a first spindle extending through the first opening and attached to the first mounting plate; a second spindle extending through the second opening and attached to the second mounting plate; and an actuator mechanism adapted to position the second spindle with respect to the first spindle, as taught by Highberg et al. so as to drill a plurality of holes in a glass sheet simultaneously in a predetermined pattern and spacing (col. 1, lines 16-18).

Regarding Claim(s) 14, Highberg et al. teach the 1st and 2nd spindles include 1st and 2nd tools, respectively, each adapted to engage a threaded part.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura/Highberg et al. as applied to claim 9 above, and further in view of Gesko (U.S. Patent 3290968).

Kimura/Highberg et al. teach the limitation except a track disposed proximate the first mounting plate and adapted to movably receive the second mounting plate.

Gesko teaches a track (46) disposed proximate the first mounting plate (41) and adapted to movably receive the second mounting plate (Fig. 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Kimura/Highberg et al. by adding a track disposed proximate the first mounting plate and adapted to movably receive the second mounting plate, as taught by Gesko so as to positioning and adjusting spindle position (col. 4, lines 49-52).

7. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura/Highberg et al. as applied to claim 9 above, and further in view of Lewis (U.S. Patent 3822958).

Kimura/Highberg et al. teach the limitation except the actuator mechanism further comprises a ball screw assembly having a ball nut and a ball screw, and a servo motor adapted to rotate the ball screw to actuate the ball nut.

Lewis teaches except the actuator mechanism further comprises a ball screw assembly

having a ball nut (63) and a ball screw (61), and a servo motor (70) adapted to rotate the ball screw to actuate the ball nut (Figs. 3 and 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Kimura/Highberg et al. by adding the a ball screw assembly having a ball nut and a ball screw, and a servo motor adapted to rotate the ball screw to actuate the ball nut, as taught by Lewis so as to move the carriage along the guide rod.

Regarding Claim(s) 12, Lewis teaches the ball nut (63) is attached to the movable plate (46) and the ball screw is attached to the fixed plate (20).

Regarding Claim(s) 13, regarding the limitation of distance between the 1st and 2nd axes of rotation is in the range of 75 mm to 1400 mm, It would have been obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to construct the apparatus of Highberg et al. with the distance between the 1st and 2nd axes of rotation is in the range of 75 mm to 1400 mm, because Applicant has not disclosed that the distance of 75 mm to 1400 mm provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the structure of the Highberg's apparatus because it would perform the drilling.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN C. HONG whose telephone number is 571-272-4529. The examiner can normally be reached on HPH.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID BRYANT can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JOHN C HONG
Primary Examiner
Art Unit 3726

Jh
December 25, 2006